

~~Add~~
~~2-4 Acres~~ 25%
~~inside Pond Time~~
~~1/4~~

Waters

Ditches

Wetlands

Rivers

Annual crops on hydric soils
(potential or inclusion)

Not count orchards,

Total Non hydric soils

Leaves above High Tide / Hwm

Roads

houses

Dra AT

Bay Delta Conservation Plan

Proposed Functional Assessment Methodology

August 3, 2010

The Department of Water Resources proposes a modified functional assessment of riparian and wetland habitats that may be affected by conveyance options for the Bay Delta Conservation Plan (Figure A). The purpose of this assessment is to characterize and evaluate the condition of wetland and riparian habitats to compare the proposed alternatives for regulatory purposes. The Functional Assessment will supplement the Draft EIS/EIR alternatives analysis for the proposed BDCP.

The method developed will be based on functional assessment principles of the Hydrogeomorphic (HGM) approach traditionally used by the Corps and the California Rapid Assessment Method (CRAM). These methods would require extensive on-the-ground sampling. Because we have limited access within the planning area, we are proposing a modified method. The proposed method is primarily based on analysis of electronic geographic data using a Geographic Information System (GIS).

Wetland functions are the physical and biological processes that occur in wetlands and may be categorized within three processes: hydrologic, biogeochemical, and habitat. Methods used to assess the quality of the wetland and riparian habitats are based on indicators or metrics that provide a rating system to describe the current conditions of a project site. The attached table describes the metrics that we are proposing for measuring the wetland functions of potential jurisdictional Waters of the U.S. affected by the BDCP conveyance options.

080210*	Acres of Potential Waters of the US by BDCP Conveyance Option				
	WEST	SCO	PTO (5 intakes)	EAST	Alt 2 (2 intakes)
Alkali Natural Seasonal Wetland Complex	22.908				
Managed Wetland	3.855	31.761	7.900	23.495	6.083
Nontidal Fresh Perm Emerg	5.223	2.020	0.934	19.646	0.934
Nontidal Perennial Aquatic	39.113		11.729	23.165	11.729
Tidal Fresh Emerg Wetland	0.636	63.001	3.068	9.764	2.849
Tidal Perennial Aquatic	351.131	696.414	361.521	380.697	193.735
Valley/Foothill Riparian total	107.831	103.095	79.391	122.981	38.864
Riparian Forest	**	**	69.638	**	**
Riparian Scrub	**	**	9.753	**	**
Vernal Pool Complex	61.086		0.029	0.029	0.029
Disturbed Vernal Pool Complex	4.312			0.650	
Ditch (based on 15 ft width)	223.000	47.000	74.000	246.000	72.000
Total acres	819.095	943.290	538.570	826.426	326.222
** not yet calculated					

Dr. [Signature]

Preliminary Jurisdictional Identification Methodology

The proposed method is primarily based on analysis of electronic geographic data using a Geographic Information System (GIS). This analysis would use four primary data sources to identify areas within the footprints of the BDCP conveyance alternatives that may constitute Waters of the U.S.:

- California Department of Fish and Game (DFG) GIS dataset showing vegetation and land use for the Sacramento-San Joaquin Delta ("DFG Vegetation GIS") (Hickson and Keeler-Wolf 2007);
- the National Hydrography Dataset (U.S. Geological Survey 2010);
- DWR GIS dataset (2010) showing the footprints of the different BDCP Conveyance Alignment alternatives;
- Digital aerial photographs (Department of Water Resources 2006).

This evaluation assumes these information sources are spatially accurate and described correctly. When the LEDPA is selected, a delineation of wetlands and other waters of the U. S. will be conducted in the field, according to the methods described in the 1987 USACE Wetland Delineation Manual.

Vegetation

The DFG Vegetation GIS was created in 2005-2006 for use in conjunction with Delta Regional Ecosystem Restoration Implementation Plan of the CALFED Ecosystem Restoration Program and covers the Legal Delta. The BDCP Conveyance Planning Area includes small areas outside the Legal Delta that are not included in the DFG Vegetation GIS. The vegetation types in those areas were mapped using methods similar to those used by DFG and were added to the DFG Vegetation GIS.

The Vegetation GIS data layer delineates polygons that indicate the vegetation or land use of the underlying areas. The vegetation polygons are classified into 129 mapping units (mapping categories), which are based on a floristic classification system derived from a cluster analysis of 37 field assessments of vegetation in the Delta, with 52 vegetation alliances and 45 plant associations.

The vegetation categories include numerous aquatic habitats, including wetland types, mudflats, and open water. However, classification is floristic (based on vegetation only) and does not distinguish between tidal and non-tidal hydrologic regimes. Because tidal and non-tidal waters differ greatly in their habitat functions, further analysis will be used to distinguish tidal and non-tidal habitat types.

Hydrology

The National Hydrography Dataset (NHD) is a geographic database that interconnects and uniquely identifies the reaches and shorelines of streams and other waterbodies that make up the nation's surface water drainage system. This database includes small drainages and channels that were not mapped as part of the DFG Vegetation GIS, but which may be jurisdictional. Features representing these drainages will be extracted from the NHD and added into the vegetation data layer to give a more accurate representation of potential jurisdictional areas.

BDCP Conveyance Alignments

Each BDCP alternative contains multiple conveyance alignment options. The features of the proposed alignment options include canals, tunnels, intakes, forebays, pumping plants, staging areas, and borrow and spoil areas. These features are stored in a geographic datafile within a geodatabase, and will be used to determine a footprint for each alignment option to determine where project features may intersect with Waters of the United States.

Potentially Jurisdictional Wetlands and Other Waters

We will use DFG's discrete vegetation mapping units and the NHD drainages to create general land cover types to identify potential wetlands and other waters. A preliminary classification includes the following land cover types:

- Tidal Perennial Aquatic
- Tidal Freshwater Emergent Wetland
- Nontidal Perennial Aquatic
- Nontidal Freshwater Permanent Emergent
- Valley/Foothill Riparian
 - Riparian Forest
 - Riparian Scrub
- Other Natural Seasonal Wetlands
- Vernal Pool Complex
- Grassland with Disturbed Vernal Pools
- Alkali Natural Seasonal Wetland Complex
- Managed Wetland
- Ditches
- Uplands (includes Inland Dune Scrub, Grassland, Developed, and Agriculture habitat types)

A GIS data layer of potential wetlands and other waters will be created from the vegetation layer by selecting the non-upland land cover polygons. This assessment will result in a GIS layer of all potentially jurisdictional Waters, including those Waters that may be later determined by the USACE to be isolated or otherwise non-jurisdictional (see example in Figure 2).

The GIS data layer of potential jurisdictional Waters of the United States will be overlain with the footprint for each proposed alignment option. The land cover types will be clipped to include only the areas of potential jurisdictional Waters that fall inside the project area (see example in Figure 3). The final product will be a map and a table of acreages of the potentially jurisdictional wetlands and other waters within each alignment option.

References

Department of Water Resources. 2006. True color, 1-foot resolution digital aerial photography. Airphoto USA, May 2006.

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Hickson, D. and T. Keeler-Wolf. 2007. Vegetation and Land Use Classification and Map of the Sacramento-San Joaquin River Delta. Prepared by Vegetation Classification and Mapping Program, California Department of Fish and Game. Sacramento, CA.

U.S. Geological Survey Earth Science Information Center, U.S. Environmental Protection Agency, and USDA Forest Service. 2010. *National Hydrography Dataset (NHD) (shapefile)*. Reston, Virginia: U.S. Geological Survey. <http://nhd.usgs.gov/techref.html>